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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,004	07/29/2003	Paul Adams	BIC-017	7347
29626	7590	05/26/2006		
THE H.T. THAN LAW GROUP WATERFRONT CENTER SUITE 560 1010 WISCONSIN AVENUE NW WASHINGTON, DC 20007			EXAMINER ALEJANDRO, RAYMOND	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/629,004

Applicant(s)

ADAMS ET AL.

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-110 is/are pending in the application.  
4a) Of the above claim(s) 10-13 and 51-110 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-9 and 14-50 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/17/04, 02/21/06.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group I and Species 2 (claims 1-9 and 14-50) in the reply filed on 05/05/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Information Disclosure Statement***

2. The information disclosure statements (IDS) submitted on 03/17/04 and 02/21/06 were considered by the examiner.

### ***Drawings***

3. The drawings are objected to because reference numeral "16" in Figure 15 does not show or point to the "nozzle". It is noted that applicant designated reference numeral 16 as the nozzle. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
5. The use of the trademarks "Teflon", "Goretex" and "Vitron" have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

6. The disclosure is objected to because of the following informalities: the current status of all nonprovisional applications should be updated. Refer to paragraph bridging pages 8-9. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1-9 and 14-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 recites the limitation "the inner liner" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is noted that the present claim contains an earlier recitation of an inner flexible liner. Hence, it is unclear whether applicant intends to recite a different "inner liner".

10. Claim 2 recites the limitation "the walls" in line 1. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 3 recites the limitation "the integral insert" in line 1. There is insufficient antecedent basis for this limitation in the claim.

12. Regarding claims 32 and 37, the phrase "poppet-type valve" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "type"), thereby rendering the scope of the claim(s) unascertainable.

### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

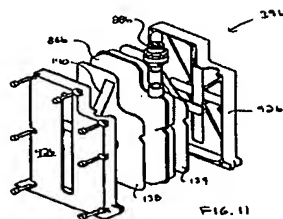
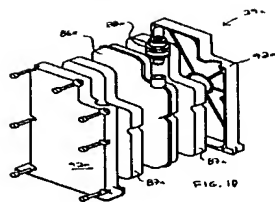
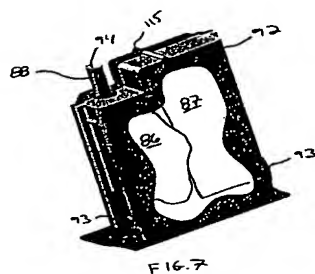
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14. (As best understood) Claims 1-9, 14-15, 17-32, 38-47 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Lawrence et al 2002/0197522.

The present applicant gears toward a fuel cartridge wherein the disclosed inventive concept comprises the specific outer/inner features thereof.

As to claim 1:

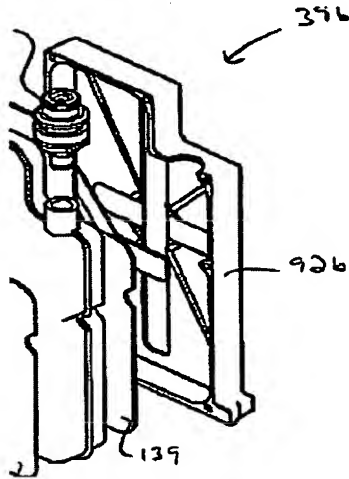
Lawrence et al disclose a removable fuel cartridge for use in a fuel cell assembly (ABSTRACT) wherein the fuel cartridge includes an expandable (*thus flexible*) fuel bladder for receiving liquid fuel, an expandable (*thus flexible*) pressure member in contact with the bladder for maintaining a positive pressure on the bladder, and a sealable exit port in fluid communication with the bladder (ABSTRACT). **Figures 7 and 10-11** below illustrate the configuration of the fuel cartridge including an insert inside the cartridge. *It is also contended that the fuel per se inside the container is also an insert disposed inside the inner liner.*



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As to claims 2-7, 9 and 24:

Figures 10-11 above illustrate insert being integral with the cartridge wall and includes a plurality of ribs (See Figures 10-11/See also enlarged portion below). *As illustrated below, what the examiner considers the ribs (the elements protruding from the surface of the cartridge) have a degree of rigidity and flexibility and they form a meshed configuration (web or interlocked members). It is noted that the terms "rigid" and "flexible" are relative terms, and the present claims do not further stipulate their degree or extent.*

As to claim 8:

Disclosed is that the expandable pressure member is a compressed foam member (P0076,0095).

As to claims 14-15 and 29-32:

Disclosed is that fuel delivery system 40 fluidly connects fuel bladder 86 of replaceable fuel cartridge 39 to the fuel chamber of the anode plate 37 (of the fuel cell), and it includes a duck-bill valve (P.0079). Other one-way valves can be utilized (P0080). *The valve itself has an*

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*opening/hole having disposed therein a valve stem preventing fluid from passing therethrough, therefore, that feature acts as the claimed liquid impermeable membrane.*

As to claims 17-19

The cartridge includes a rigid canister 93 (P0074) wherein the canister is dimensioned and configured such that the fuel bladder is capable of holding fuel (P0074). *Thus, it has an internal support structure. **Figures 10-11** above also illustrate the structure of the cartridge. It is noted that the terms “rigid” and “flexible” are relative terms, and the present claims do not further stipulate their degree or extent. Thus, the cartridge of Lawrence et al exhibit a reduce degree of flexibility.*

As to claim 20:

The cartridge includes a self-sealing membrane (P.0077).

As to claims 21 and 25:

The cartridge includes a sealable port 88 (P0076). *Thus, the cartridge has an open structure.*

As to claims 22-23 and 26-28

The cartridge includes a septum 94 which includes a substantially self-sealing membrane (P.0077). *This septum is liquid impermeable. It is noted that said septum acts as lid covering the sealable port.*

As to claims 38-42 and 44:

Lawrence et al disclose the cartridge includes the expandable pressure member which is a compressed foam member (P0076,0095). A spring biased member can also be used to exert a force against the fuel bladder (P.0076). *It is noted that the empty space surrounding the spring*



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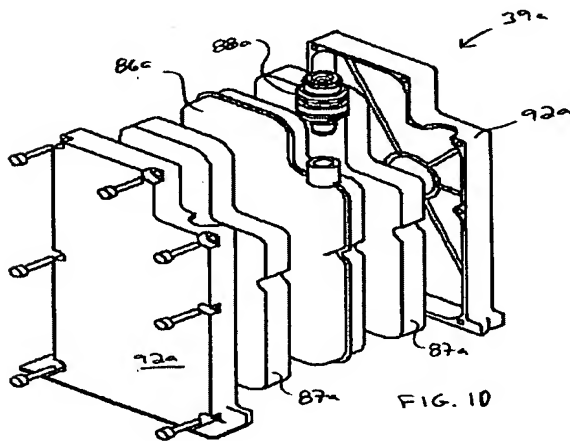
*biased member and/or the foam member is filled with air (a gas) subject to compressing forces due to the pressure exerted by the members.*

As to claim 43:

Lawrence et al teach that the container is removable (P0011-0012). *Thus, fuel refilling container may be connected thereto.*

As to claims 45-47:

Members represented by reference numerals 87a (Figure 10) and 140 (Figure 11 above) represent movable features which may act as the claimed movable wall comprising a seal further comprising a wiper pressing against the outer casing.



As to claim 50:

The limitation that the inner liner is colored is inherent to the construction material of the inner liner.

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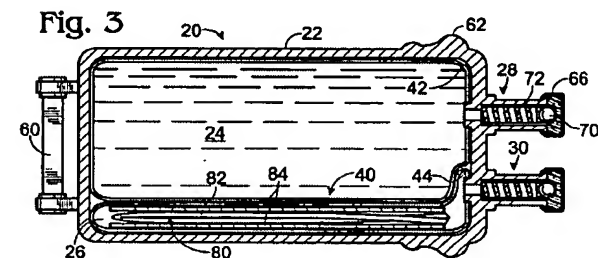
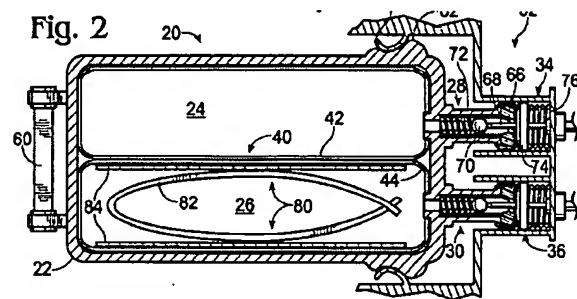
15. (*As least*) Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Acker et al 6460733.

Acker et al disclose a multiple-walled fuel container (TITLE) for use with a fuel cell (ABSTRACT) including an outer casing 54 fabricated from a plastic; an inner tank 56 which is a flexible bladder which is fully expandable by filling it with a fuel (COL 5, lines 55-67). It is further disclosed that additives may be placed within the inner tank (COL 6, lines 53-59). *Thus, it has an insert.*

Thus, the present claim is anticipated.

16. (*As least*) Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Prasad et al 2003/0082427.

Prasad et al disclose a fuel supply configured to be removably coupled to a fuel cell (TITLE/P0020). **Figures 2-3** below illustrate the fuel supply including a fuel storage area configured to hold a fuel solution, a fuel solution outlet, a waste storage area, and a waste inlet and a movable barrier separating the fuel storage area and the waste storage area (ABSTRACT). Valves may be used for fuel solution outlet and waste inlet (P0036). Each of fuel solution outlet 28 and waste inlet 30 includes a redundant septum/ball-and-spring valve system (*serving as the nozzle*) which are self-sealing (*the membrane or absorbent material*) (P.0036, 0038). *Thus, it has an insert.*



Thus, the present claim is anticipated.

17. (As least) Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Herdeg et al 6610433.

Herdeg et al disclose a fuel tank (TITLE) for a fuel cell system having a cavity of variable size and a mechanism for compressing the fuel cavity. The fuel cavity is bounded by a cylindrical inner wall of the fuel tank, by a circular end surface of the fuel tank and by a circular displaceable intermediate wall (ABSTRACT). *Thus, it has an insert.*

Thus, the present claim is anticipated.

18. (As least) Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kinkelaar et al 2003/0008193.

Kinkelaar et al disclose a liquid fuel delivery system for a fuel cell including a container defining a volume for holding a liquid fuel; a reservoir structure positioned within the volume

and into which at least a portion of the liquid fuel wicks and from which said liquid fuel subsequently may be metered (ABSTRACT). *Thus, it has an insert.*

Thus, the present claim is anticipated.

### ***Claim Rejections - 35 USC § 103***

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

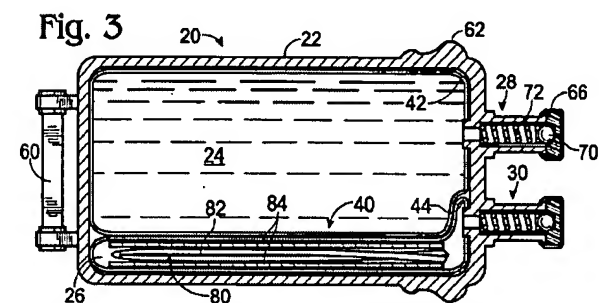
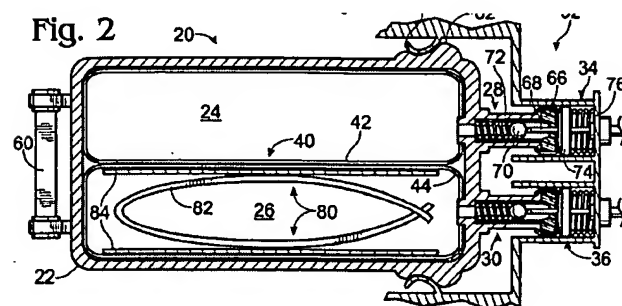
20. Claims 16, 33-37 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence et al 2002/0197522 as applied to claim 1, 15 and 45 above, and further in view of Prasad et al 2003/0082427.

Lawrence et al is applied, argued and incorporated herein for the reasons above. However, the preceding prior art of record does not expressly disclose the specific valve nozzle; transporting by-product to the outer casing including the two valve arrangement; and the outer casing having a film thereon.

#### **As to claims 16 and 33-37:**

Prasad et al disclose a fuel supply configured to be removably coupled to a fuel cell (TITLE/P0020). **Figures 2-3** below illustrate the fuel supply including a fuel storage area configured to hold a fuel solution, a fuel solution outlet, a waste storage area, and a waste inlet and a movable barrier separating the fuel storage area and the waste storage area (ABSTRACT). Valves may be used for fuel solution outlet and waste inlet (P0036). Each of fuel solution outlet

28 and waste inlet 30 includes a redundant septum/ball-and-spring valve system (*serving as the nozzle*) which is self-sealing (*the membrane or absorbent material*) (P.0036, 0038).



As to claim 48:

Prasad et al reveals that the fuel container may also be made from a multi-layered structure comprising a polymeric material (P.0029-0031, 0034-0035).

In view of the above, it would have been obvious to a skilled artisan at the time the invention was made to use the specific valve nozzle of Prasad et al in the fuel container of Lawrence et al because Prasad et al disclose that such a specific feature is a self-sealing connector that automatically sealed whenever fuel supply is used, and it provides a sealing mechanism that provides more security against leakage.

As to transporting by-product to the outer casing including the two valve arrangement, it would have been obvious to a skilled artisan at the time the invention was made to transport by-product to the outer casing including the two valve arrangement to the fuel container of

Lawrence et al as taught by Prasad et al as Prasad et al disclose that such a feature allow to simultaneously reduce the volume of fuel storage area and increasing the volume of waste storage area to permit the interior volume of outer casing/container to be used more efficiently than if fuel storage area and waste storage area were of fixed volume. Thus, it optimizes the use of space within the fuel supply container.

Regarding the outer casing having a film thereon, it would have been obvious to a skilled artisan at the time the invention was made to coat a film on Lawrence et al' outer container as taught by Prasad et al because Prasad et al disclose that inner and outer containers may also be made of a multi-layered structure comprising polymeric material to improve mechanical stability of the container, to improve barrier/sealing characteristics by forming a high-gas barrier layer and to reduce permeability by using low gas permeability materials. Thus, a coat or a film on the external surface of inner/outer containers provides the foregoing benefits.

21. Claims 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence et al 2002/0197522 in view of Prasad et al 2003/0082427 as applied to claim 48, and further in view of Ramanathan et al 2004/0096610.

Lawrence et al and Prasad et al are applied, argued and incorporated herein for the reasons above. However, the preceding prior art does not expressly disclose the specific cartridge material.

Ramanathan et al disclose that it is known to make fuel tanks (TITLE) by using polytetrafluoroethylene (CLAIM 24) because such a material bonds to low energy surface materials and has fuel barrier properties.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to use the specific cartridge material of Ramanathan et al in the fuel container of Lawrence et al and Prasad et al because Ramanathan et al teach that such a material bonds to low energy surface materials and has fuel barrier properties. As a result, polytetrafluoroethylene, when used as a fuel container material, exhibits good fuel barrier properties.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro  
Primary Examiner  
Art Unit 1745



RAYMOND ALEJANDRO  
PRIMARY EXAMINER